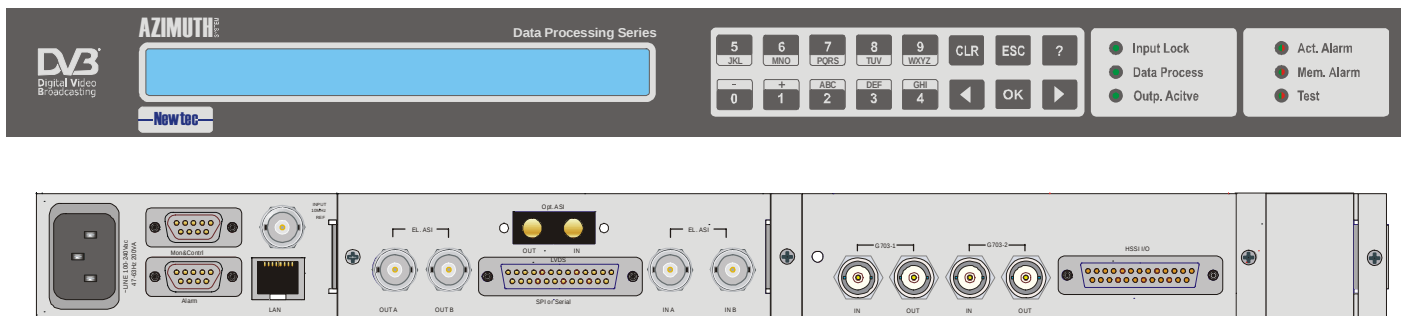




DESCRIPTION

The NTC/2131/NA.A interface convertor is designed as an interface convertor between the broadcast world, mainly using ASI signals, and the telecom world, with the G.703 & HSSI signals as standards.

On the input side, the NTC/2131/NA.A allows automatic or manual selection between two DVB-ASI-coax inputs or a DVB-SPI input or a serial-LVDS input. Dual DVB-ASI-coax monitoring outputs are also provided. The supported input data rates are between 0-216 Mb/s (Modulator limit) for DVB-ASI and DVB-SPI and between 0-18 Mb/s for Serial-LVDS. Burst data rates are up to 27MB/s for DVB-ASI.

Optical ASI option: One can also fit the NTC/2131/NA.A with an optical ASI plug-in: one of the two electrical DVB-ASI inputs is replaced with the optical input and an additional ASI monitoring output becomes available at the optical transmitter output.

Rate Adapter option : When activated, the on-board ASI Rate Adapter will drop & insert MPEG null packets as required to obtain a fixed transmit output rate and uninterrupted service, even if the net input transport rate is variable. The Rate Adapter will adjust MPEG PCR time stamps as required by MPEG rules. The rate adapter buffer is operated at minimum delay, but can store 1000+ packets for bursty input.

On the output side 2 types of physical interfaces, being HSSI (Cisco) and G.703, are available. In case G.703 is required, the user has a choice of a number of optional piggy-back plug-ins, covering all standardized data rates (E1, T2, E2, E3, DS3). A maximum of 2 of any of the above rates can be installed simultaneously, giving the possibility to either switch from one rate to the other.

Furthermore, the G.703 has up to 4 presets to equalize the coax cable slope. Also, the G.703 signal and even the HSSI signal (if at the same rate of a G.703 signal) can be monitored on a separate BNC coax output. For the HSSI interface, an (SD,TT) to (RD,RT) local DTE loop-back command is possible with the LA/LB selection. An ST clock comes available to be used as a reference for TT (modulator). The internal reference (and consequently the ST clock) can be slaved either to an internal or external 10 MHz clock, or to an external G703 input clock.

All Control and Monitoring parameters are available locally on the front panel (LCD display & keyboard) and remotely through a web interface (Http) or through the RS-485/232 port or through the 10/100 Base-T ethernet port. The last two use the RMCPv2 protocol. There is optionally an SNMP + MIB agent.

APPLICATIONS

The NTC/2131/NA.A is meant for transmission over a G.703 link of ASI video/data streams in combination with the NTC/2131/NB.A G.703/HSSI to SPI/ASI convertor.

FEATURES

- Complies to MPEG (ISO/IEC 13818-1) system specs. & EN 50083-9 (Oct. 97) interface specs.
- Two selectable ASI inputs (auto/manual)
- Rate adaptation (for MPEG Transport Streams)
- DVB-SPI-LVDS or serial LVDS input on sub-D connector
- Selectable internal or external clock
- 2 regenerated ASI monitor outputs
- 10 MHz reference input
- PRBS generator and PRBS BER decoder
- Cable distances : ASI-coaxial: 100m
- Compliant to : G703 & HSSI (CISCO) specifications
- Data rate : HSSI : 0.917 to 110 Mbps
G703 : 2 rates in 2 to 45 Mbps range (to be defined at order)
- HSSI DTE loopback
- Support for one SNMP alarm trap
- Local & remote M&C access to all menus through a
 - * web interface (Http protocol)
 - * RS-485/RS-232 (RMCPv2 protocol)
 - * 10/100Base-T Ethernet port (RMCPv2 + SNMP/MIB)
- User programmable menu structure
- Action Keys (group of commands under 1 button)
- Real-time clock for alarm occurrence logging
- Internal test-generator, PRBS counter
- Dynamic build up of alarm menus
- Very compact: 1 RU (height: 4,4 cm !)
- Highly reliable Newtec design
- Low cost
- CE label
- Diagnostics generator

• VERSIONS & OPTIONS

The modular architecture opens various possibilities and application fields: Firmware-packages will determine the usage and capabilities of the unit.

1. Baseband Data Interface Modules :

The interchangeable base band data interface modules provide a wide range of input interfaces via coaxial and/or sub-D connectors. Optical inputs are also available.

- NTC/3453/AA: DVB ASI/SPI/Serial-LVDS interface card
Hardware option: optical ASI in/out plug-in NTC/3453.x.x.A
Firmware options:
– Automatic rate adapter NTC/3453.x.xB (for MPEG TS only)
- NTC/3458/AA: TELCO HSSI+2x single rate G.703 interface card
 - NTC/3458.x.xA: HSSI-G.703 output 2 to 52 Mbps
 - NTC/3458.x.xB: HSSI-G.703 output 2 to 110 Mbps (HSSI extended rate)
 - NTC/3343/AA: G.703 at 8.448 Mb/s submodule used on NTC/3458
 - NTC/3343/AB: G.703 at 6.312 Mb/s submodule used on NTC/3458
 - NTC/3344/AB: G.703 at 34.368 Mb/s submodule used on NTC/3458
 - NTC/3348/AA: G.703 at 44.736 Mb/s submodule used on NTC/3458
 - NTC/3349/AA: G.703 at 2.048 Mb/s submodule used on NTC/3458

2. 10 MHz Reference Board (optional) :

In case one needs a 10 MHz reference input and/or output, the following options are available:

- NTC/3462/AB: 10 MHz OCXO reference oscillator (normal use)
- NTC/3462/AA: 10 MHz OCXO High Stability Ref. Oscillator

3. SNMP agent and MIB library (optional) :

Needed whenever the unit needs to be controlled over Ethernet via NMS.

NTC/2131.xx.xB

Configuration help :

The AZIMUTH series provides a nearly non-exhaustive number of configuration possibilities. The web-based Azimuth Configuration Engine will easily guide you through your selection criteria. Alternatively, Newtec's sales and support team are at your full disposal for any additional information you might need. (See last page for coordinates).

• DATA SUMMARY

ASI EL-IN A & B :

connector	: BNC female @ 75 Ohm
return loss (22-270 MHz)	: 17 dB
coupling	: transformer
sensitivity	: 200 mVpp
max input	: 880 mVpp

ASI EL-OUT A & B :

connector	: BNC female @ 75 Ohm
coupling	: transformer
level	: 800 mVpp $\pm$ 10%
rise time	: < 1.2 ns

ASI OPT-IN (option) :

connector	: SC
fiber	: 1300 nm multimode 62.5/125 mm
received power	: -14 dBm (max.) -27 dBm (min.)

ASI OPT-OUT (option) :

connector	: SC
fiber	: 1300 nm multimode 62.5/125 mm
transmit power	: -14 dBm (max.) -19 dBm (min.)
wavelength	: 1270 nm < λ < 1380 nm

SPI/Serial INTERFACE :

DATA INPUT :	SPI	Serial
connector	25 pin sub-D (F)	
circuits (A/B; +/-)		
1-14	CLK	RT
10-23		RD
3/10-16/23	DATA 7/0	
11-24	DVALID	RR
12-25	PSYNC	
2, 15	GND	GND
13	SHLD	SHLD
level	LVDS	

HSSI INTERFACE :

connector	sub-D (F)
circuits (+/-)	
(5-18), (10-23)	RT, RD
12-25	ST
(1-14), (4-17)	TT, SD
(7-20), (9-22)	LA, LB
11-24	CA
2-15	SG
13	SHIELD
rate	0.05 - 110 Mbit/s
output levels	ECL-10 kH (330 ; -5 V)
input levels	0.15 - 1 Vptp (diff. 110)

G.703 OUTPUT :

rate	: 2.048 ; 6.312 ; 8.448; 34.368 ; 44.736 MHz
connector	: BNC (F)
impedance	: 75 Ohm

G.703 INPUT :

rate	: 2.048 ; 6.312 ; 8.448; 34.368 ; 44.736 MHz
connector	: BNC (F)
impedance	: 75 Ohm

TYPICAL COAX CABLE LOSS

(AT&T - 734A, 450 Feet - 75 Ohm) :

1 MHz	: 1.2 dB
3.1 MHz	: 2.2 dB
4.2 MHz	: 2.7 dB
22.4 MHz	: 5.8 dB

HSSI CABLE :

max. length : 15 m for bitrates < 52 Mbps
 1.5 m for extended range
 indiv. shielded TSP : 110 Ohm
 (To be ordered separately)

CONTROL :

Interface selection : HSSI, G.703-R1, G.703-R2
 Interface clock : External (fixed) 0.05 to 110 Mhz
 or rate adapter
 Interface rate : resolution 1 bps
 MPEG framing : 188- 204 byte
 Internal reference : slaved to (int) 10MHz or G.703
 Interface equaliser (G.703) : max. 4 preset values

EXTERNAL 10.0 MHz REFERENCE (optional) :

Input level : -3 dBm up to +7 dBm
 Output level : +7 dBm
 connector : BNC (F) - 50

MONITOR & CONTROL INTERFACES :

- a) protocol : Http (via webbrowser)
 connector : RJ-45
 electrical : Ethernet 10 base-T
 b) protocol : RMCP version 2 only
 connector : 9 pin sub-D female
 electrical : RS-485 / RS-232
 c) protocol : RMCP version 2 only over
 TCP-IP or UDP, SNMP
 connector : RJ-45
 electrical : Ethernet 10 base-T

ALARM INTERFACE :

connector : 9 pin sub-D (F)
 electrical : dual switch-over contacts

MECHANICAL :

19" sub rack, height: 1RU, weight 6 kg

POWER SUPPLY :

90-130/180-260V, 105VA, 47-63 Hz
 36-72VDC, 4,2A (optional)

TEMPERATURE:

operational : 0° up to +40°C
 storage : -40° up to +70°C

Control

Interface rate (1 bit/s resol.), 10.0 MHz source (internal or external), internal PRBS generator on/off, interface type, interface equalizer, MPEG framing (188 byte or 204 byte), serial interface hardware and address, user levels, rate adapter on/off etc..

Monitoring

All control parameters, alarms (active and memorized), power supply voltages, internal temperature, transmit clock offset, buffer contents

• PERFORMANCE**FUNCTIONALITY - ASI :**

ASI Baud rate IN : 270 MBaud $\pm$ 100 ppm
 ASI Baud rate OUT : (note 1)
 RS422 Transport Rate IN
 range : 0-18 Mb/s
 Packet formats accepted : 188 or 204-byte
 Input packet timing (burstiness)
 within 1 packet : compliant to DVB burst & byte mode

Rate adaptor :

ASI & SPI Transport rate IN,
 range : 0-216 Mb/s
 accuracy, ADAPTER ON : < rate out minus 100 ppm
 accuracy, ADAPTER OFF : $\pm$ 70 ppm

Packet buffer

ADAPTER ON : 1024 packets max. (note 4)
 ADAPTER OFF : around 4 packets (from modulator board)

Stability:

ADAPTER ON, stability : (note 2)
 resolution : 1 Hz
 ADAPTER OFF : tracks interface transport rate
 PCR update accuracy ptp : < 100 ns + PKDLY * (10 MHz
 reference + input PCR
 source accuracy)
 (note 2, note 3)

(note 1) : All input/output specified parameters comply with
 DVB-A010 Rev. 1

(note 2) : internal 10 MHz ref. $\pm$ 10 ppm,
 external reference possible

(note 3) : PKDLY= peak buffer delay, available in monitoring

(note 4) : Operated with minimum delay (e.g. 1 packet)

FUNCTIONALITY - HSSI :

Local DTE Loopback (via LA/LB)

FUNCTIONALITY - G.703 :

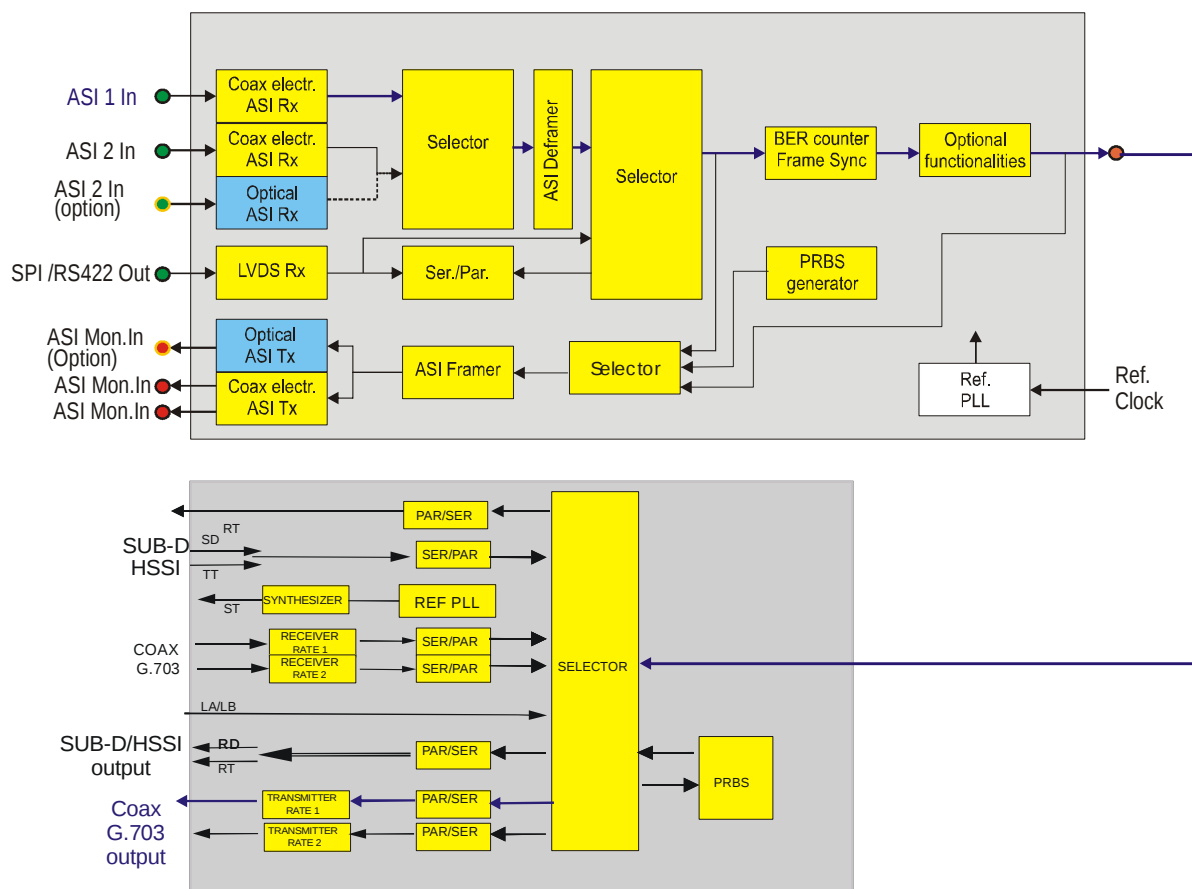
G.703 reception
 Code violation verification

CLOCK STABILITY - G.703 :

2 M : $\pm$ 50 ppm
 6 & 8 M : $\pm$ 30 ppm
 34 & 44 M : $\pm$ 20 ppm

G.703- RATE	CABLE LOSS (dB)		equaliser
	loss	typ. Length	
2 Mbps :	0.0 to -10.0 dB		0
6/8 Mbps :	0.0 to -2.4 dB	0 - 550 ft	0
	-2.2 to -4.8 dB	500 - 1100 ft	1
	-3.1 to -6.0 dB	700 - 1350 ft	2
34 Mbps :	0 to -5.7 dB	0 - 550 ft	0
	-4.1 to -12.0 dB	400 - 1150 ft	1
	-5.7 to -14.0 dB	550 - 1350 ft	2
	-6.8 to -14.0 dB	650 - 1350 ft	3
45 Mbps :	0.0 to -12.0 dB	0 - 900 ft	0 (adaptive (equalizer)

• **BLOCK DIAGRAM**



• **TECHNICAL LITERATURE & REFERENCES (ALSO AVAILABLE ON OUR WEBSITE)**

Other related products

- NTC/2131/NB.A G.703/HSSI to SPI/ASI convertor
- NTC/2137 Transport stream ASI concentrator-deconcentrator
- NTC/2163 DVB-S satellite demodulator
- NTC/2180 DVB-S L-band satellite modulator
- NTC/2263/xx DVB-S2 satellite demodulator
- NTC/2277/xF DVB-S2 IF-band satellite modulator
- NTC/2280/xF DVB-S2 L-band satellite modulator
- NTC/3453 ASI/SPI/serial LVDS DVB interface board
- NTC/3458 Dual rate G.703/HSSI data interface board
- NTC/3462 10 MHz reference frequency modul

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